Efforts to Improve Water Quality & Stream Condition in Montgomery County

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Department of Environmental Protection
Montgomery County Maryland

Montgomery County's (NPDES) Permit
National Pollutant Discharge Elimination System

- Add stormwater management to currently unmanaged, developed areas
  - Treatment goal is additional 20% of impervious area (4100 acres) currently not treated to the maximum extent practicable (MEP)
- Meet commitments in Trash Free Potomac Treaty
- Increase use of Environmental Site Design (ESD) or Low Impact Development (LID)

Fernwood Road bioswales

Good Hope pervious concrete sidewalk

Gaithersburg 'Green Street' retrofit

Stream Resource Conditions


Northern Hog Sucker

Stonefly

Blueridge Sculpin


Mayfly


Brown Trout


Greenside Darter


Rosyside dace

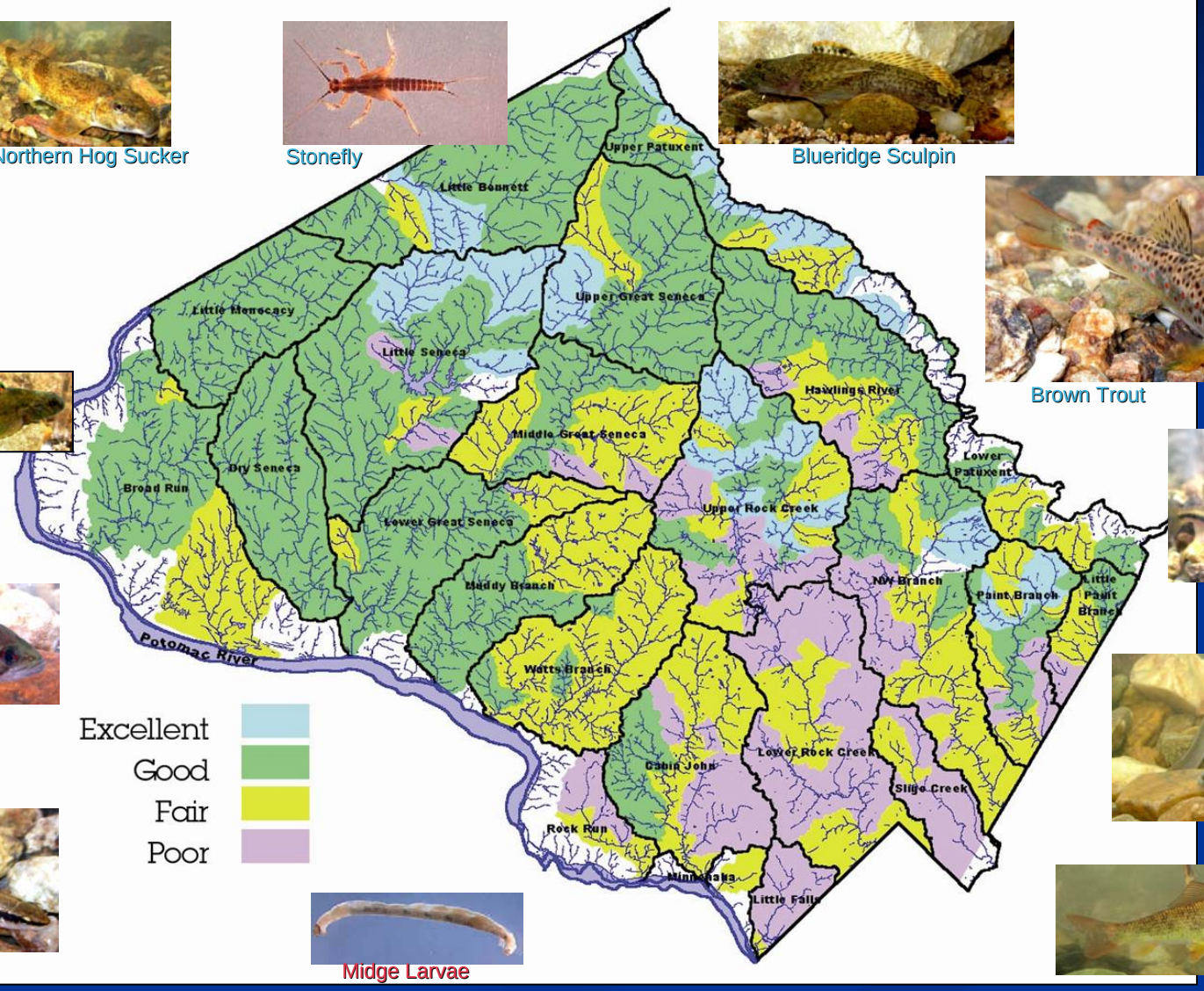

Rock Bass


American Eel


Blacknose Dace


White Sucker

Midge Larvae



There are over 1,500 miles of streams in Montgomery County which contain more than 50 fish species and over 300 aquatic insect taxa

The effects of urban runoff…

Threats to infrastructure

Down-cut and enlarged, shallow streams

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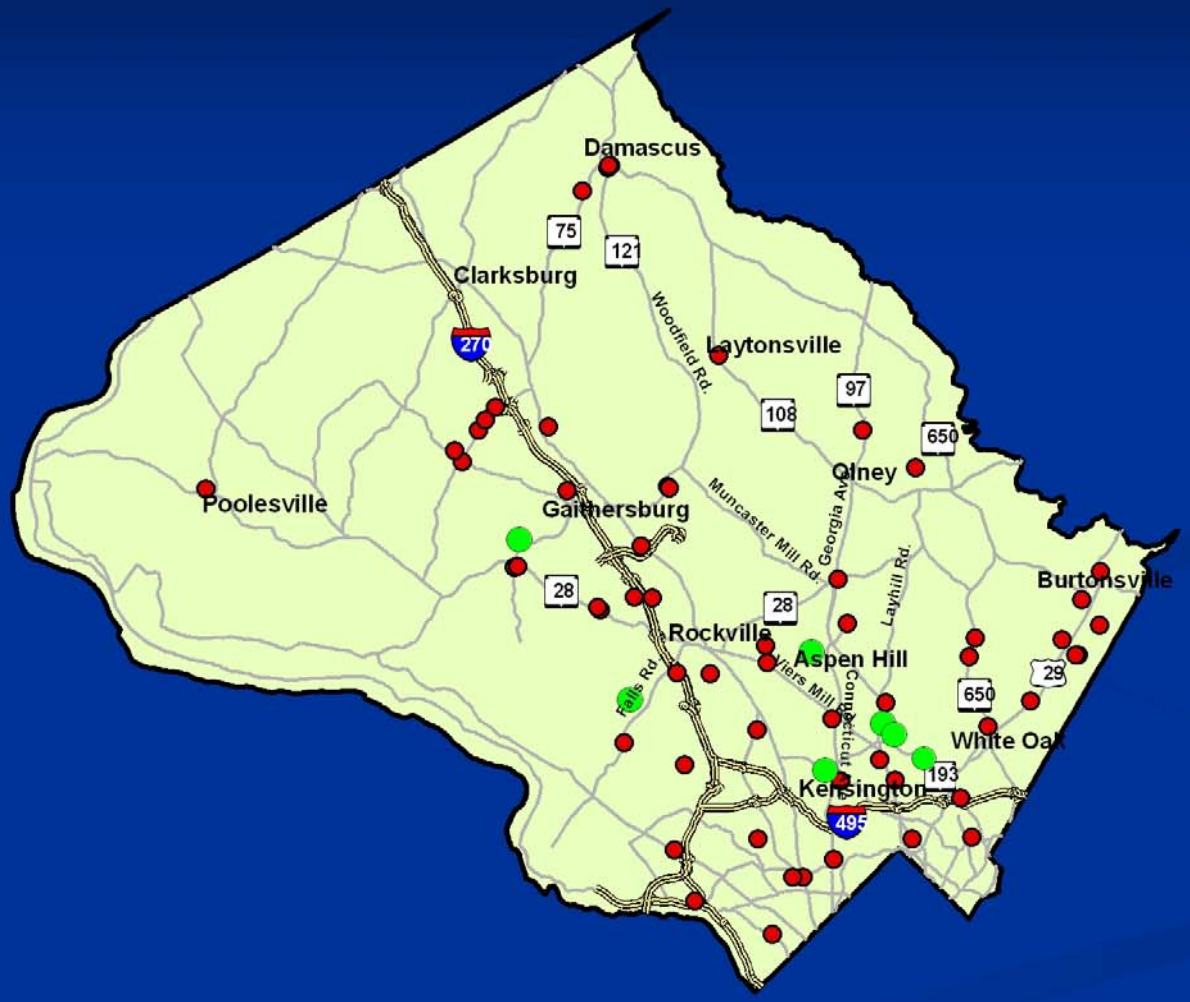
Public Facilities Assessed for LID Retrofit Opportunities



<u>66 Sites Assessed</u>

- Libraries - 12
- Community Centers - 11
- Park & Rides – 10
- Regional Service Centers – 9
- Police Stations – 8
- Fire Stations – 5
- Pools – 3
- Schools – 5
- Roadways – 3

<u>In Design (green circles)</u>

- Aspen Hill Library
- Kensington Park Library
- Cold Spring Elem. School
- Ridgeview Middle School
- Arcola Ave.
- Amherst Ave.
- Breewood Neighborhood

What is LID?

- Low Impact Development (AKA - Environmentally Sensitive Design or ESD)
- Uses a variety small scale practices to capture stormwater runoff close to the source
- Slows down the rate of runoff
- Reduces the overall volume of runoff
- Provides filtration to remove pollutants from stormwater runoff
- Provides an opportunity for stormwater to soak into the ground, replenishing ground water.


Bioretention


Rain barrels


Curbside Extension


Tree Box

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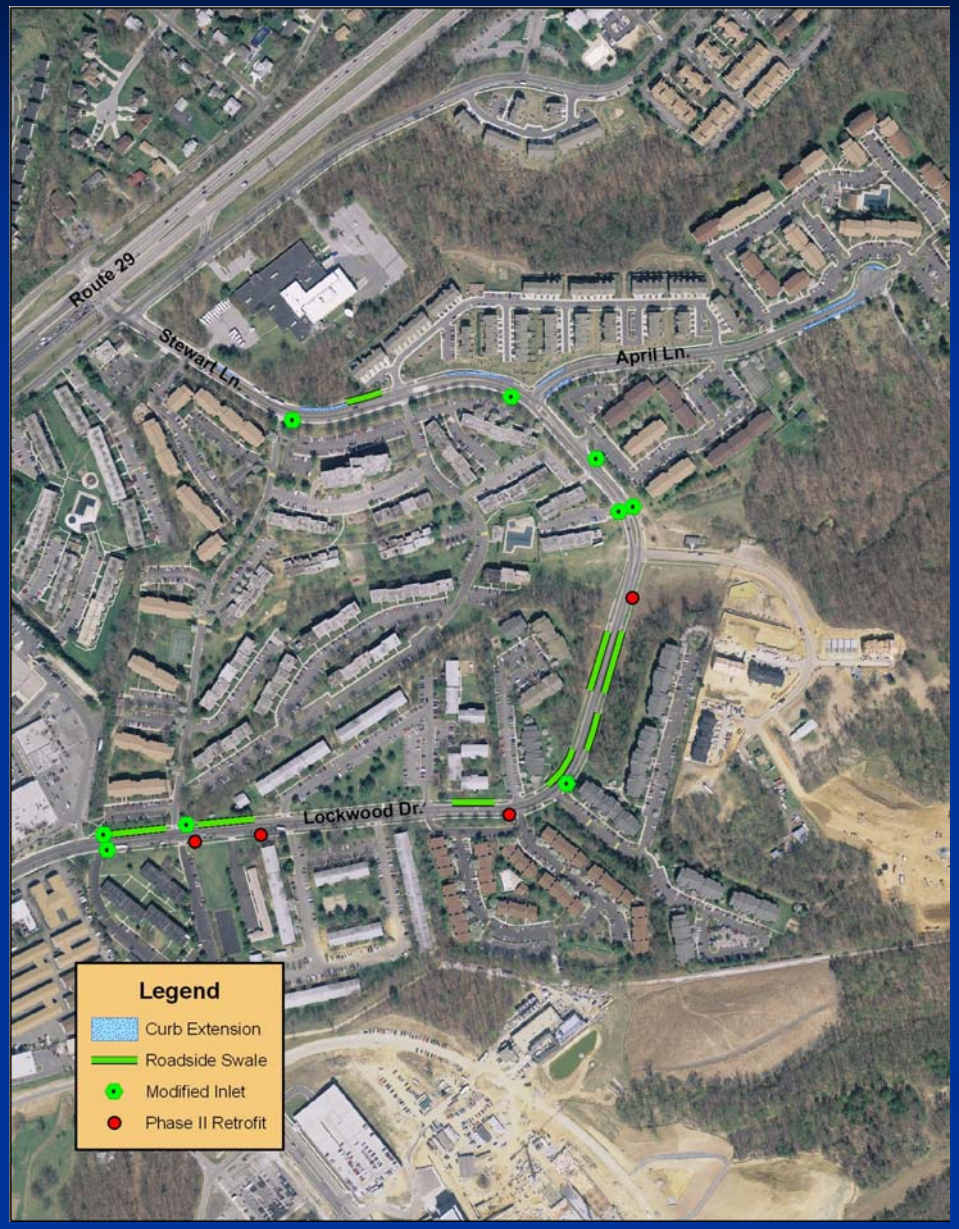
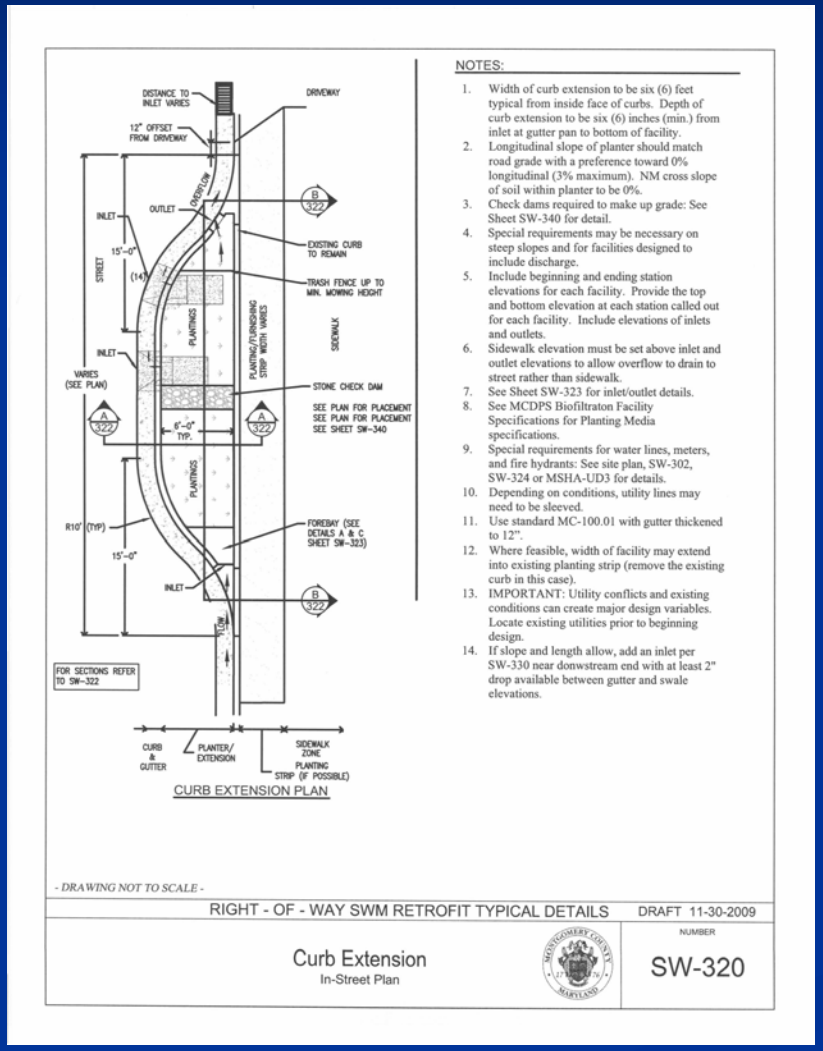
Stormwater Retrofit in White Oak

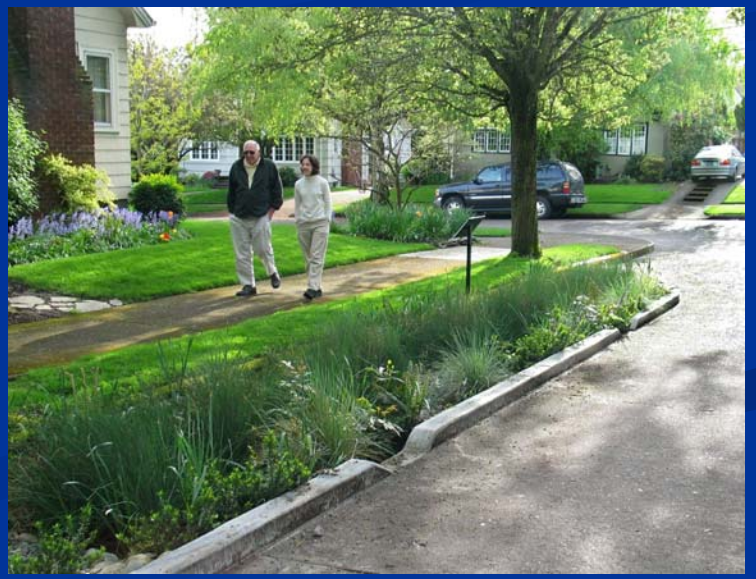
Lockwood Drive and Stewart Lane



- Retrofit Will Include; Curb Extensions, Roadside Bioswales and Modified Inlets
- All Retrofit Practices Combined Will Treat 13 Acres of Imperviousness
- Phase II Projects are Pending Agreement with WSSC
- Construction of Phase I is Expected to Begin Summer 2010

Curb Extension



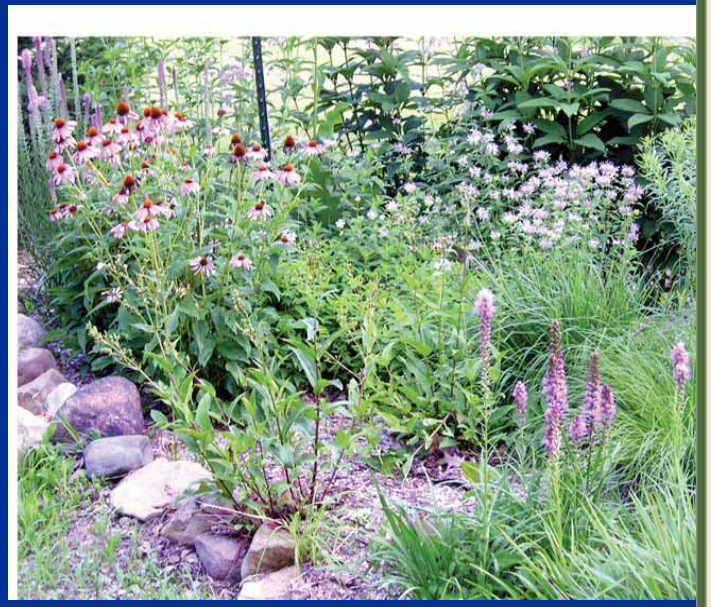


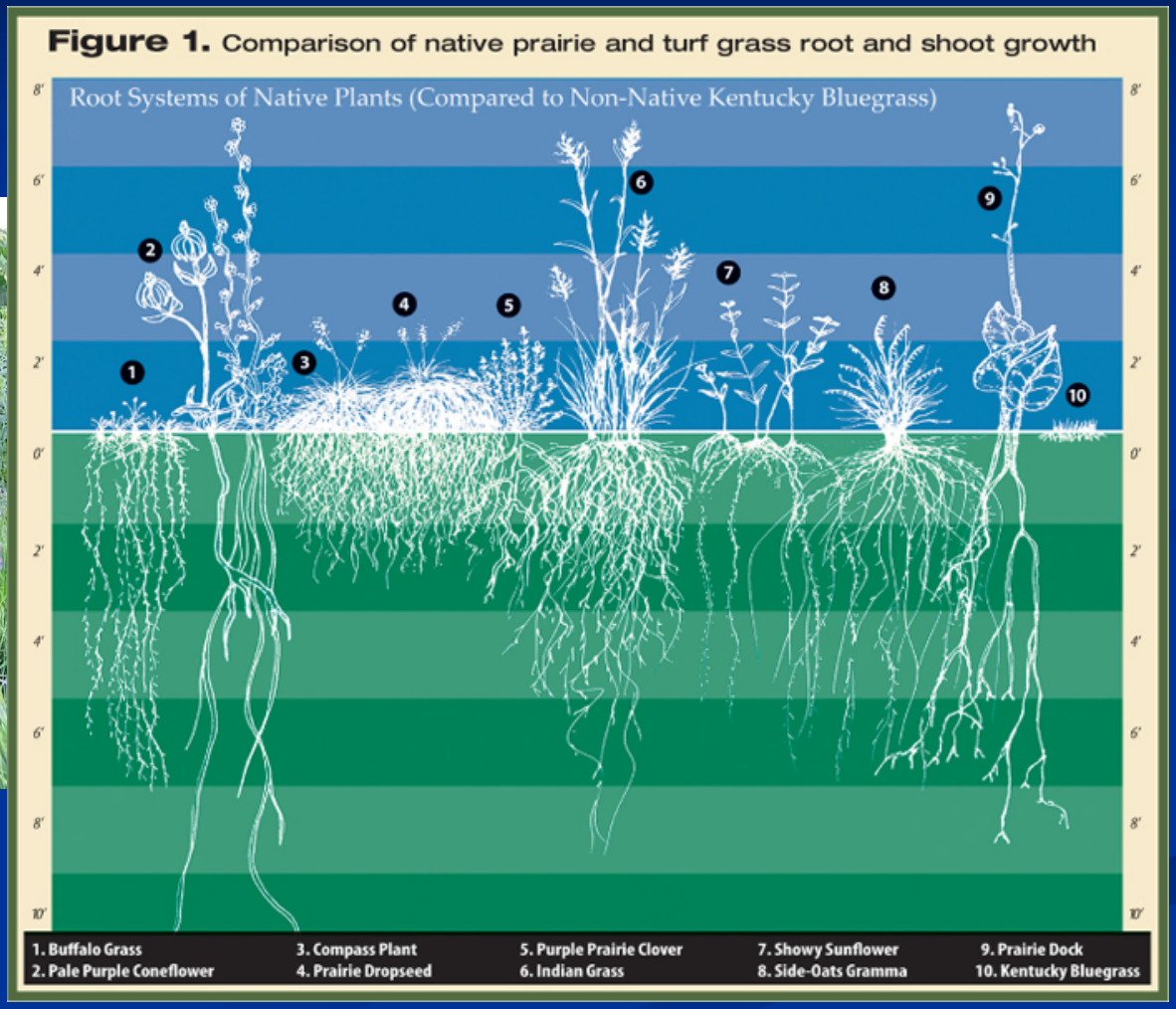
Siskiyou Green Street in Portland, Oregon

Bioswales

Fallsgrove Village Center –
near Shady Grove Hospital

Typical Mix of Bioretention Plants



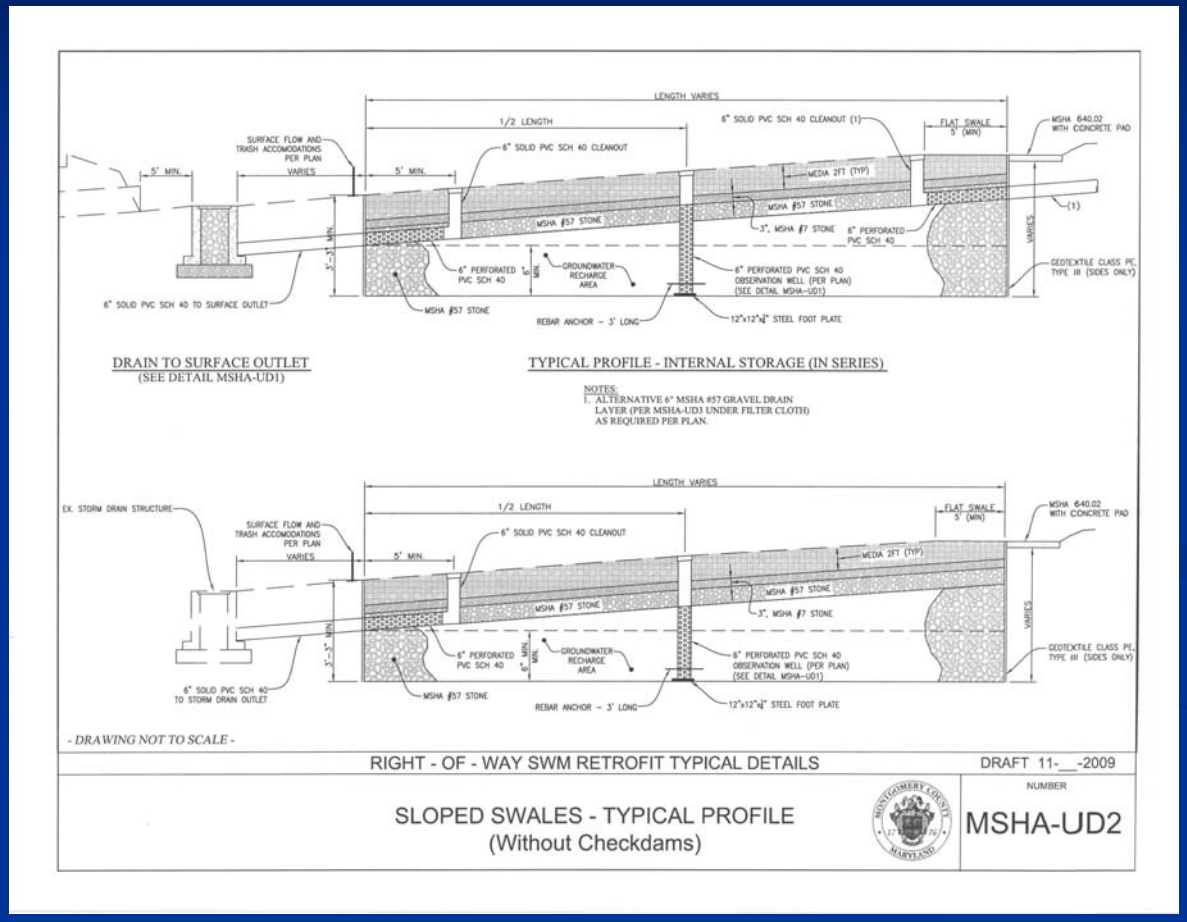


Bioswale Retrofit In Cloverly

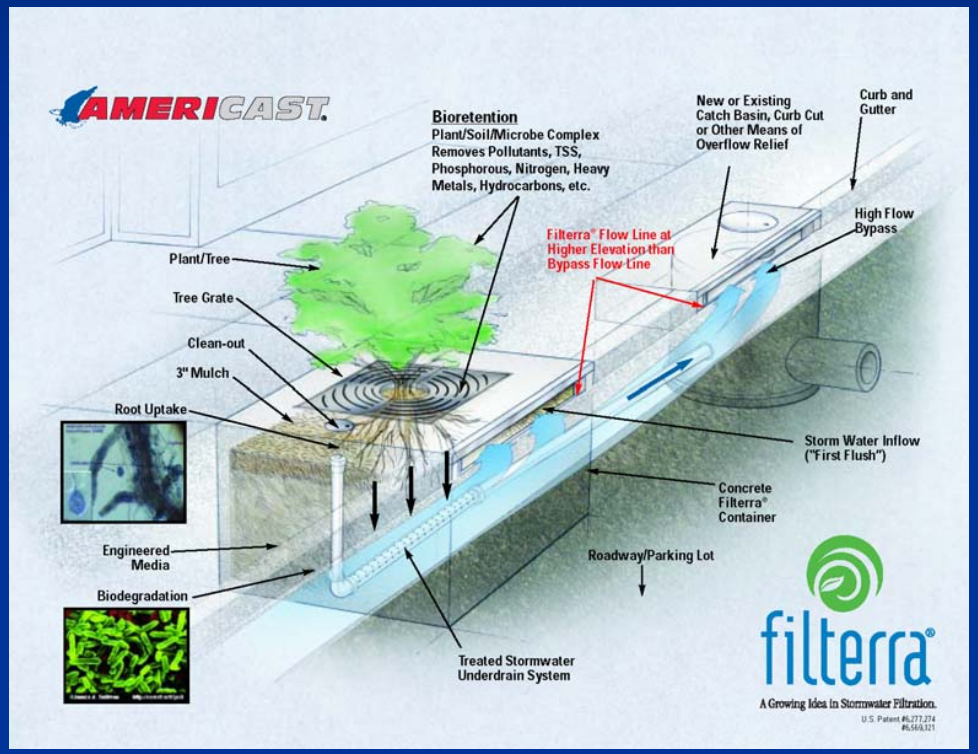
Installed By MD-SHA For ICC Environmental Stewardship

Bioswale Retrofit Along Redmiles Road

Montgomery County Bioswale Design



Tree Boxes



White Oak Library

High Loadings of Trash & Organic Debris to Curb Inlets

Questions ?